

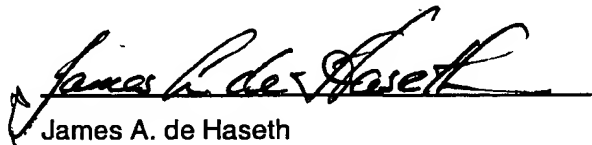


DECLARATION UNDER 37 CFR 1.132

I, Dr. James A. de Haseth, hereby declare as follows:

1. I am a Professor of Chemistry in the Department of Chemistry at the University of Georgia, Athens, Georgia and the co-author with Dr. Peter R. Griffiths of the textbook "Fourier Transform Infrared Spectrometry." I have an extensive background in the field of infrared spectroscopy and my curriculum vitae is attached hereto setting forth my qualifications and background in that field.
2. I have read and studied U.S. Patent application 09/977,664 of Robert D. Herpst and I am therefore familiar with the content of that application (hereinafter the "Herpst Application").
3. I have reviewed and understand all the claims of the Herpst Application.
4. As to claim 1 of the Herpst Application, I understand that a finished product, a sample holder, is claimed for use with an infrared spectrophotometer that has a throughbore and an infrared light transmitting support substrate located in that throughbore that allows the infrared light to pass through the substrate and no other material is present in that throughbore that would substantially absorb the infrared light and where the substrate is formed by one or more of the steps of cleaving, fly cutting, chipping, milling, or scaling, and the finished substrate is not precision optically polished.
5. It is my opinion, that it would be unexpected for one skilled in the art of spectroscopy to be able to construct a finished product in the form of a sample holder for an infrared spectrophotometer or infrared filterometer in accordance with the steps and recited features of that claim.
6. In my opinion, the same is true of claim 18 that is a method for the manufacture of a sample holder for use in an infrared spectrophotometer or infrared filterometer, and, again, a final product sample holder is achieved in a manner that is unexpected to me and I believe to those skilled in the art of spectroscopy.
7. Since the same limitation or descriptions that I have consider to result in the unexpected result discussed above are also present in later independent claims 30, 39, 45, 46, 47 and 53, it is my opinion that those claims describe an invention that achieves unexpected results.

I hereby declare that all statements made herein of my own knowledge are true and correct and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both, under 18 U.S. C. § 1001 and that such willful false statements may jeopardize the validity of the application of any patent issued under the above referenced application.

  
James A. de Haseth

# Curriculum Vitae

## Academic History

**Name:** James Andries de Haseth  
**Rank:** Professor of Chemistry  
**Education:** Bachelor of Science in Chemistry (ACS degree), University of Illinois at Chicago, 1972.  
Doctor of Philosophy in Analytical Chemistry, University of North Carolina at Chapel Hill, December 9, 1977. Research Director: Professor Thomas L. Isenhour. Dissertation: "Search and Differentiation Algorithms and Information Theory Applied to Chemical Spectroscopic and Biochemical Data."

### Academic Employment:

1978 - 1979	Postdoctoral Research Associate, University of Tennessee, Knoxville.
1979 - 1983	Assistant Professor of Chemistry, University of Alabama, University (Tuscaloosa).
1983 - 1987	Assistant Professor of Chemistry, University of Georgia, Athens.
1987 - 1992	Associate Professor of Chemistry, University of Georgia, Athens.
1992 - present	Professor of Chemistry, University of Georgia, Athens.

### Other Professional Employment:

1980 (Summer)	Research Chemist, U. S. Environmental Protection Agency, Southeast Environmental Research Laboratory, Athens, Georgia.
June 2003 - August 2004	Academic leave; U. S. Department of Agriculture, Agricultural Research Service, Quality Assessment Research Unit, Athens, Georgia.

### Awards and Honors:

August 1989	Lecture series on Fourier Transform Infrared Spectrometry, presented at the University of Utrecht, The Netherlands.
April 1990	Lecture series on the Applications of Fourier Transform Infrared Spectrometry, presented at Helsinki, Finland, and Stockholm, Sweden.
July 1989 & 1990	The Ellis R. Lippincott Memorial Lecturer, Bowdoin College, Bowdoin Infrared Course, Brunswick, Maine, July 21, 1989, and July 20, 1990.
May 1991	The Annual Chemistry Awards Day Lecturer, The University of Illinois at Chicago, Chicago, Illinois, May 30, 1991.

April 1992	A series of three lectures on Fourier Transform Infrared Spectrometry was presented at The University of Helsinki, Helsinki, Finland. Three lectures were presented
August 1992	A series of twenty-four lectures was presented on Fourier Transform Infrared Spectrometry. The lectures were presented at Auckland and Wellington in New Zealand, and at Sydney, Brisbane, Perth, Adelaide, Hobart and Melbourne in Australia.
July 1995	Richard C. Lord Lecturer of the Coblentz Society, 1995.
February 2000	A series of ten hours of lectures on chromatography and vibrational spectrometry was given to the Minnesota Chromatography Forum, Minneapolis, Minnesota.
March 2000	A series of seven hours of lectures on FT-IR spectrometry was given to the Pittsburgh Spectroscopy Society
November 2002	National Academies of Sciences, National Research Council Committee on Testing and Evaluation of Standoff Chemical Detectors.
July 2004	Richard C. Lord Lecturer of the Coblentz Society, 2004.
April 2005	Northeast Georgia Section of the American Chemical Society Research Chemist of the Year, 2004-2005.

## Research Areas

The major research focus is applications of Fourier transform infrared spectrometry, which includes the design of new spectrometers and interferometers. This research is being extended to the design of portable spectrometers for absorption and reflection in the UV through mid-IR regions, fluorescence, and Raman spectrometry. Research has also involved the interfacing of gas chromatography with FT-IR spectrometry for the development of analysis tools for the computerized identification of GC/FT-IR eluates. Liquid chromatographic interfaces for FT-IR spectrometry to record on-the-fly spectra of LC eluates have also been studied. The same technology has been used to study the dynamics of protein conformation. An additional interface between capillary electrophoresis and Fourier transform infrared spectrometry has been developed. The application of CE/FT-IR spectrometry is primarily for the study of complex carbohydrates. Vibrational Circular Dichroic studies with the use of FT-IR spectrometry have been pursued. Data processing in the Fourier domain for chemical and spectrometric data and applications of information theory to biochemical data are of interest.

## Scholarly Activities

## Publications

### Books authored or co-authored

Griffiths, P. R. and J. A. de Haseth, *Fourier Transform Infrared Spectrometry*, Wiley-Interscience, New York (1986), 656 pages.

Griffiths, P. R. and J. A. de Haseth, *Fourier Transform Infrared Spectrometry, Second Edition*, Wiley- Interscience, New York, to be submitted January, 2006.

### Books edited

de Haseth, J. A., *Fourier Transform Spectroscopy: 11th International Conference*, American Institute of Physics Conference Proceedings, Woodbury, NY, 1998, 430, 753 pages.

### Chapters in books

de Haseth, J. A., "Fourier Transform Infrared Spectroscopy", in *Fourier, Hadamard and Hilbert Transforms in Chemistry*, A. G. Marshall, Ed., Plenum Press, New York (1982).

### Journal Articles

de Haseth, J. A., W. S. Woodward and T. L. Isenhour, "Direct Optical Encoding of Recorded Spectra with a Computer Interfaced Vidicon Television Camera", *Analytical Chemistry*, **48**, 1513-1517 (1976).

de Haseth, J. A., H. B. Woodruff and T. L. Isenhour, "Error Tabulation by Text Searching of Large Chemical Data Base Compilations - Applications to the *ASTM Infrared Spectral Index*", *Applied Spectroscopy*, **31**, 18-25 (1977).

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- de Haseth, J. A. and L. V. Azarraga, "An Interferogram-based Infrared Search System", *Analytical Chemistry*, **53**, 2292-2296 (1981).
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- Richardson, P. T. and J. A. de Haseth, "An Algorithm for the Encoding of Peaks in Digitized Chromatographic Data", *Computer Applications in the Laboratory*, **1**, 64- 66 (1983).
- Gurka, D. F., M. Umaña, E. D. Pellizzari, A. Moseley, and J. A. de Haseth, "The Measurement of On-the-Fly Fourier Transform Infrared Reference Spectra of Environmentally Important Compounds", *Applied Spectroscopy*, **39**, 297-303 (1985).
- Romañach, R. J., J. A. de Haseth and Y. Ito, "Preliminary Studies for Interfacing Countercurrent Chromatography (CCC) with Fourier Transform Infrared (FT-IR) Spectrometry", *Journal of Liquid Chromatography*, **8**, 2209-2219 (1985).
- McCoy, C. A. and J. A. de Haseth, "Phase Correction of Vibrational Circular Dichroic Features", *Applied Spectroscopy*, **42**, 336-341 (1988).
- Romañach, R. J. and J. A. de Haseth, "Flow Cell CCC/FT-IR Spectrometry", *Journal of Liquid Chromatography*, **11**, 133-152 (1988).
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- Richardson, P. T. and J. A. de Haseth, "An Interferogram Based Method for the Correlation of GC/FT-IR Components", *Analytical Chemistry*, **60**, 386-390 (1988).
- McCoy, C. A. and J. A. de Haseth, "Modified Phase Correction Algorithms in VCD/FT-IR Spectrometry", *Mikrochimica Acta*, **1988 I**, 97-100 (1988).
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- Robertson, R. M., J. A. de Haseth, J. D. Kirk and R. F. Browner, "MAGIC-LC/FT-IR Spectrometry: Preliminary Studies", *Applied Spectroscopy*, **42**, 1365-1368 (1988).
- de Haseth, J. A. and R. M. Robertson, "MAGIC-LC/FT-IR: A Viable Interface for HPLC and FT-IR Spectrometry", *Microchemical Journal*, **40**, 77-93 (1989).
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- Jarman, Jessica L., Richard A. Todebush, and James A. de Haseth, "A Glass Nebulizer Interface for Capillary Electrophoresis/Fourier Transform Infrared Spectrometry," *Journal of Chromatography A*, **976**, 19-26 (2002).
- Todebush, Richard A., Lin-Tao He, and James A. de Haseth, "A Metal Nebulizer Capillary Electrophoresis/FT-IR Spectrometric Interface," *Analytical Chemistry*, **75**, 1393-1399 (2003).
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- Hunter, J. L., A. G. A. Thomas, J. A. de Haseth, and L. Wicker, Valencia Orange Pectinmethylesterase Modified Pectin Characterized by FT-IR, Charge Fractionation and Gelling Properties," submitted for publication.

## Reports

- Griffiths, P. R., L. V. Azarraga, J. A. de Haseth, R. W. Hannah, R. J. Jakobsen, and M. M. Ennis, "Specifications for Infrared Reference Spectra of Materials in the Vapor Phase above Ambient Temperature", *Applied Spectroscopy*, **33**, 543-548 (1979).
- Griffiths, P. R., J. A. de Haseth, and L. V. Azarraga, "Capillary GC/FT-IR", *Analytical Chemistry*, **55**, 1316A-1387A (1983).
- de Haseth, J. A., "The Fourier Transform in Spectrometry", *Spectroscopy*, **1**(10), 10-19 (1986).
- de Haseth, J. A., "Hybridized Techniques: Hyphenated and Slashed Instrumental Methods", *Spectroscopy*, **2**(10), 14-16 (1987).



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- Collette, T. W., J. A. de Haseth, and A. W. Garrison, "Environmental Analytical Chemistry: A Report on the 27th International Symposium on Environmental Analytical Chemistry", *Trends in Analytical Chemistry*, **16**(9), v-vi (1997).
- Przybylowicz, Edwin P., Edward V. Brownell, D. Bruce Chase, James A. de Haseth, Richard C. Flagan, Peter R. Griffiths, David W. Layton, Thomas A. Reichardt, and Lorenz R. Rhomberg, "Testing and Evaluation of Standoff Chemical Agent Detectors," Report of the National Research Council, National Academies Press, Washington, DC (2003).

### Conference Proceedings

- de Haseth, J. A., "Analysis of Spectral Anomalies in Rapid-Scanning Fourier Transform Infrared Spectrometry (TRS)", in *1981 International Conference on Fourier Transform Infrared Spectroscopy*, H. Sakai, Ed., *Society of Photo-Optical Instrumentation Engineers*, **289**, 34-35 (1981).
- de Haseth, J. A., "Interferometer Stability in Gas Chromatography/Fourier Transform Infrared Spectrometry", in *1981 International Conference on Fourier Transform Infrared Spectroscopy*, H. Sakai, Ed., *Society of Photo-Optical Instrumentation Engineers*, **289**, 147-149 (1981).
- Azarraga, L. V., R. R. Williams, and J. A. de Haseth, "Initial Results from an Interferogram-Based Search System", in *1981 International Conference on Fourier Transform Infrared Spectroscopy*, H. Sakai, Ed., *Society of Photo-Optical Instrumentation Engineers*, **289**, 232-234 (1981).
- de Haseth, J. A., "Mathematics of Spectral Treatment in the Fourier Domain", in *1985 International Conference on Fourier and Computerized Infrared Spectroscopy*, J. Grasselli, Ed., *Society of Photo-Optical Instrumentation Engineers*, **553**, 41-46 (1985).
- Friedman, C. R. and J. A. de Haseth, "Rapid Scanning FT-IR/Time Resolved Spectrometry (TRS) for Gas Phase Systems", in *1985 International Conference on Fourier and Computerized Infrared Spectroscopy*, J. Grasselli, Ed., *Society of Photo-Optical Instrumentation Engineers*, **553**, 232-233 (1985).
- Richardson, P. T. and J. A. de Haseth, "Structural Analysis Using Interferometric Data", in *1985 International Conference on Fourier and Computerized Infrared Spectroscopy*, J. Grasselli, Ed., *Society of Photo-Optical Instrumentation Engineers*, **553**, 279-280 (1985).
- Weaver, S. P. and J. A. de Haseth, "Methods Development for Rapid-Scanning Gas Phase Fourier Transform Infrared/Time-Resolved (FT-IR/TRS) Spectrometry",

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Romañach, R. J. and J. A. de Haseth, "High Speed Countercurrent Chromatography/Fourier Transform Infrared (HSCCC/FT-IR) Spectrometry", in *1985 International Conference on Fourier and Computerized Infrared Spectroscopy*, J. Grasselli, Ed., *Society of Photo-Optical Instrumentation Engineers*, **553**, 349-350 (1985).

Robertson, R. M., J. A. de Haseth, and R. F. Browner, "Buffered Mobile Phases with MAGIC-LC/FT-IR", in *7th International Conference on Fourier Transform Spectroscopy*, David G. Cameron, Ed., *Society of Photo-Optical Instrumentation Engineers*, **1145**, 228-229 (1989).

Sherman, J. W. and J. A. de Haseth, "Classification of Compounds Using a Window Fourier Domain System", in *7th International Conference on Fourier Transform Spectroscopy*, David G. Cameron, Ed., *Society of Photo-Optical Instrumentation Engineers*, **1145**, 165-166 (1989).

Ferguson, G. K. and J. A. de Haseth, "Detection Parameters in MAGIC-LC/FT-IR", in *7th International Conference on Fourier Transform Spectroscopy*, David G. Cameron, Ed., *Society of Photo-Optical Instrumentation Engineers*, **1145**, 453-454 (1989).

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- Barton II, F. E., J. A. de Haseth, and D. S. Himmelsbach, "New Instruments for Measuring the Quality of Agricultural Commodities," *Proceedings of the 33<sup>rd</sup> U.S. Japan Natural Resource Panel*, Honolulu, pgs. 248-252 (2004).
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### Book Reviews:

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- de Haseth, J. A., review of *Infrared Spectroscopy: Analytical Chemistry by Open Learning*, by W. O. George and P. S. McIntyre, John Wiley & Sons, Chichester (1987), *Journal of the American Chemical Society*, **110**, 5238 (1988).
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- de Haseth, J. A., review of *Chromatography/Fourier Transform Infrared Spectroscopy and Its Applications*, by R. White, Marcel Dekker, New York (1990), *Analytical Chemistry*, **62**, 1060A-1061A (1990).
- de Haseth, J. A., review of *Chromatography/Fourier Transform Infrared Spectroscopy and Its Applications*, by R. White, Marcel Dekker, New York (1990), *Applied Spectroscopy*, **45**(2), 20A (1991).

### Other Publications

#### Editorial

- de Haseth, J. A., "Defining Our Terms", *Applied Spectroscopy*, **42**, 12A (1988).

#### Perspective

- de Haseth, J. A., "What is Analytical Chemistry?", *Spectroscopy International*, **1**(7), 22- 24 (1989), and *Spectroscopy*, **5**(1), 20-21 (1990).

## **Contributions other than formal publications**

### **Patents**

"Monodisperse Aerosol Generation Interface for LC/FT-IR Spectrometry", (joint with R. F. Browner, GIT). US Patent Number 4,924,097. Technology was licensed to Hewlett-Packard and Perkin-Elmer.

"Monodisperse Aerosol Generation Interface for LC/FT-IR Spectrometry", (joint with R. F. Browner, GIT). European Community Patent Number 90201174.1-2303.

"Monodisperse Aerosol Generation Interface for LC/FT-IR Spectrometry", (joint with R. F. Browner, GIT). Canadian and Japanese patents applied for.

"Monodisperse Aerosol Generator for Use with Infrared Spectrometry", (joint with R. F. Browner, GIT). US Patent Number 5,175,433.

"Monodisperse Aerosol Generator for Use with Infrared Spectrometry", (joint with R. F. Browner, GIT). European Community Patent Number 0455892A1.

### **Seminars presented at other institutions**

"Information Theory Applied to Protein Conformation", Emory University, Atlanta, Georgia, January 1980.

"Fourier Domain Processing in FT-IR", University of Alabama in Birmingham, Birmingham, Alabama, April 1980.

"Fourier Transform Infrared Spectrometry: Fourier Domain Studies", Middle Tennessee State University, Murfreesboro, Tennessee, October 1982.

"Spectrometric Investigations in the Fourier Domain", Georgia Institute of Technology, Atlanta, Georgia, February 1983.

"Fourier Transform Infrared Spectrometry", USDA, Athens, Georgia, January 1984.

"Fractals in Spectrometry", University of New Orleans, New Orleans, Louisiana, March 30, 1984.

"GC/FT-IR with Wide Bore Capillary Columns", Digilab Users' Group Meeting, Cambridge, Massachusetts, June 20, 1984.

"Wide Bore Capillary GC/FT-IR", USEPA, Las Vegas, Nevada, August 2, 1984.

"Gas Chromatography/Fourier Transform Infrared Spectrometric Information", Procter and Gamble Company, Cincinnati, Ohio, January 24, 1985.

"Gas and Liquid Chromatography/Fourier Transform Infrared Spectrometry", Burroughs Wellcome Company, Greenville, North Carolina, September 13, 1985.

"Infrared Structure Elucidation in the Fourier Domain", East Carolina University, Greenville, North Carolina, September 13, 1985.

"Time Resolved Infrared Spectrometry and Fourier Domain Structure Elucidation", Exxon Research and Engineering Company, Annandale, New Jersey, October 2, 1985.

"Countercurrent Chromatography/Fourier Transform Infrared (CCC/FT-IR) Spectrometry", Digilab Users' Group Meeting, Cambridge, Massachusetts, June 24, 1986.

"A Window Fourier Domain Infrared Search System", Standard Oil of Ohio, Cleveland, Ohio, September 17, 1986.

"Infrared Spectra of Liquid Chromatographic Eluates: The Countercurrent Approach", presented at James Madison University, Harrisonburg, Virginia, November 21, 1986.

"Spectral Identification in the Fourier Domain", presented at the University of Delaware, Newark, Delaware, February 20, 1987.

"MAGIC-LC/FT-IR Spectrometry", presented at the University of South Florida, Tampa, Florida, October 8, 1987.

"MAGIC-LC/FT-IR Spectrometry", presented at the University of Miami, Coral Gables, Florida, October 9, 1987.

"Vibrational Circular Dichroism FT-IR Spectrometry", presented at the University of Alabama at Birmingham, Birmingham, Alabama, January 29, 1988.

"MAGIC-LC/FT-IR Spectrometry", presented at the Spectroscopy Society of Pittsburgh, April 20, 1988.

"MAGIC-LC/FT-IR Spectrometry", presented at the Digilab User's Meeting, Cambridge, Massachusetts, June 21, 1988.

"Liquid Chromatography and Fourier Transform Infrared Spectrometry", presented at Bruker Analytische Messtechnik, Karlsruhe, Germany, December 9, 1988.

"An Introduction to Fourier Transform Infrared Spectrometry", presented at the Perkin-Elmer User's Meeting, Stockholm, Sweden, December 14, 1988.

- "State-of-the-Art in GC/FT-IR Spectrometry", presented at the Perkin-Elmer User's Meeting, Stockh lm, Sweden, December 14, 1988.
- "Infrared Fibers and Their Use in the Analysis of Polyurethane Flexible Foams", presented at Dow Chemical USA, Freeport, Texas, August 28, 1990.
- "The Use of Mid-Infrared Fibers as Remote Probes", presented at the Institute of Paper Science and Technology, Atlanta, Georgia, November 9, 1990.
- "Mid-Infrared Fibers as Remote Probes", presented at Los Alamos National Laboratories, Albuquerque, New Mexico, December 20, 1990.
- "Mid-Infrared Fibers and their Use in the Analysis of Polymers", presented at the Department of Chemistry, University of New Mexico, Albuquerque, New Mexico, February 27, 1991.
- "Mid-Infrared Fibers for Remote Sensing", presented at the Bio-Rad FT-IR Users' Meeting, Cambridge, Massachusetts, June 27, 1991.
- "Monitoring of Polyurethanes with Mid-Infrared Fibers", presented at the Institut f r Physikalische Chemie der Universit t zu K ln", Cologne, Germany, September 11, 1991.
- "Mid-Infrared Fibers for the Analysis of Polyurethane Foams and RIM Polyurethanes", presented at Dow Chemical USA, Freeport, Texas, September 23, 1991.
- "Mid-Infrared Probes", presented for the Analytical Science Discussion Group, Dow Chemical Company, Midland, Michigan, December 9, 1991.
- "Mid-Infrared Fiber Probes," presented at the Bio-Rad Users' Meeting (Europe), Dusseldorf, Germany, April 28, 1992.
- "Mid-infrared Fiber Probes", presented at the Society for Applied Spectroscopy Local Meeting, Chicago, Illinois, May 12, 1992.
- "Applications of Analytical FT-IR Spectrometry: Infrared Fiber Probes and HPLC/FT-IR Spectrometry", presented at Shell Development Company, Houston, Texas, August 17, 1993.
- "Applications of Analytical FT-IR Spectrometry: Infrared Fiber Probes and HPLC/FT-IR Spectrometry", presented at Clemson University, Clemson, South Carolina, September 30, 1993.
- "Mid-IR Fiber Probes", presented at Aristech Chemical Corporation, Monroeville, Pennsylvania, November 17, 1993.

- "Characterization of Protein Folding by Particle Beam FT-IR Spectrometry," presented at the Hercules Analytical Symposium, Hercules Corporation, Wilmington, Delaware, May, 1995.
- "The Use of Step-Scanning in FT-IR Spectrometry," presented at the Eastman Chemical Company, Kingsport, TN, February, 1998.
- "Process Monitoring with FT-IR Spectrometry," presented at the Eastman Chemical Company, Kingsport, TN, February, 1998.
- "Fourier Transform Infrared Spectrometry," presented at The Dow Chemical Company, Freeport, TX, October, 1998.
- "Quantitative Analysis with Fourier Transform Infrared Spectrometry," presented at The Dow Chemical Company, Freeport, TX, October, 1998.
- "Chromatography and Infrared Spectrometry," presented at The Dow Chemical Company, Freeport, TX, October, 1998.
- "Fourier Transform Near Infrared Raman Spectrometry," presented at The Dow Chemical Company, Freeport, TX, October, 1998.
- "Process Monitoring with FT-IR Spectrometry," presented at The Dow Chemical Company, Freeport, TX, October, 1998.
- "System Problems and Potential Errors with Fourier Transform Infrared Spectrometry," presented at The Dow Chemical Company, Freeport, TX, October, 1998.
- "Protein Conformation by Particle-Beam Infrared Spectrometry," presented at Waseda University, Tokyo, Japan, November, 1998.
- "The Determination of Carbohydrate Composition by FT-IR Spectrometry," presented at Kwansei-Gakuin University, Nishinomiya, Japan, November, 1998.
- "Quantitative Analysis of Complex Carbohydrates by FT-IR Microspectrometry," presented at a joint meeting of the Minnesota Section of the American Chemical Society and the Minnesota Local Section of the Society for Applied Spectroscopy, Minneapolis, Minnesota, February, 2000.
- "Capillary Electrophoresis/FT-IR Spectrometry," presented at Air Products Corporation, Incorporated, Allentown, Pennsylvania, July, 2000.
- "Analysis of Complex Carbohydrates by FT-IR Spectrometry and Chemometrics," presented at the University of Idaho, Moscow, Idaho, January 23, 2001.



"Capillary Electrophoresis/Fourier Transform Infrared Spectrometry for Carbohydrate Analysis," presented at the Complex Carbohydrate Research Center, University of Georgia, Athens, Georgia, February 28, 2001.

"FT-IR Instrumentation for the Process Control Industry," presented at Mettler Toledo AutoChem, Millersville, MD, January 2003.

"Process Control with Raman Spectrometry," presented at Mettler Toledo AutoChem, Millersville, MD, January 2003.

## **Recognitions and outstanding achievements**

Selected as a speaker for the Council for Chemical Research, 1984-1985.

Tour Speaker for the Society for Applied Spectroscopy, 1987.

Certificate of Merit, awarded by the Society for Applied Spectroscopy, October, 1990.

UGA Chemistry Professor of the Year, awarded by the UGA ACS Student Affiliates, 2001.

## **Supervision of Student Research**

### **Dissertations Directed**

Denys François Leclerc                      University of Georgia                      1985  
"Fractal Phenomena in FT-IR Data Processing"  
Current Employment: Pulp and Paper Research Institute of Canada, Vancouver, BC.

Paul Thomas Richardson                      University of Georgia                      1985  
"Fourier Transform Infrared Spectrometry: Environmental Problem Solving by Computerized Techniques"  
Current Employment: E. I. DuPont de Nemours and Co., Wilmington, DE.

Rodolfo Jesus Romañach                      University of Georgia                      1986  
"Development of CCC/FT-IR Spectrometry"  
Current Employment: Associate Professor, University of Puerto Rico, Mayaguez, PR.

Ellen Victoria Nagy                      University of Georgia                      1988  
"The Use of Information Theory in the Prediction of Protein Secondary Structures"  
Current Employment: Georgia Pacific, Decatur, GA.

Colleen Ann McCoy                      University of Georgia                      1988  
"Advances in Phase Correction and Measurement of Vibrational Circular Dichroism by Double Modulation Fourier Transform Infrared Spectrometry"

Current Employment: unknown. Left Georgia Pacific for medical school.

- Miron Gerard Still                      University of Georgia                      1989  
"Theoretical Studies of Chiral Stationary Phases"  
Current Employment: Whitehall Robbins, Richmond, VA.
- Raymond Marion Robertson                      University of Georgia                      1989  
"Monodisperse Aerosol Generator Interface Combining Liquid Chromatography with  
Fourier Transform Infrared Spectrometry"  
Current Employment: Hoechst Celanese, Charlotte, NC.
- Jeffrey William Sherman                      University of Georgia                      1990  
"Studies in Search and Classification Systems Using Window Fourier Domain Data"  
Current Employment: Mettler-Toledo AutoChem, Columbia, MD.
- Xu-Jin Lü                                      University of Georgia                      1991  
"Studies of Enantioselective Interactions in Chiral Separations by Fourier Transform  
Infrared Spectrometry"  
Current Employment: Bristol-Myers Squibb, Brunswick, NJ.
- Jennifer Elizabeth Andrews                      University of Georgia                      1991  
"Mid-Infrared Fiber-Fourier Transform Infrared Spectrometry"  
Current Employment: Mettler-Toledo AutoChem, Atlanta, GA.
- Glenda Kay Ferguson                      University of Georgia                      1993  
"Investigation of Pharmaceutical Analyses with Monodisperse Aerosol Generator  
Interface Combining Liquid Chromatography with Fourier Transform Infrared (MAGIC-  
LC/FT-IR) Spectrometry"  
Current Employment: Associate Professor, Wesleyan College, Macon, GA.
- Vincent Edward Turula, Jr.                      University of Georgia                      1995  
"Dynamic Solution Conformation of Biopolymers by Particle Beam LC/FT-IR  
Spectrometry"  
Current Employment: Wyeth Vaccines, Research Triangle Park, NC.
- Xihui Liang                                      University of Georgia                      1995  
"Target Transformation Factor Analysis in the Study of Polyurethane Foam Formation  
and Curing and VCD/FT-IR Spectrometry in the Determination of Chiral Separation  
Mechanisms"  
Current Employment: Pfizer, Inc., Groton, CT.
- Sanmitra Arvind Bhat                      University of Georgia                      1996  
"Study of Polyurethane Foams by Mid-Infrared Fiber/FT-IR Spectrometry and Study of  
Ester Crosslinking Reactions on Aluminum Surfaces by Infrared-ATR Spectrometry"  
Current Employment: Eastman Chemical, Kingsport, TN.
- Runhua Zhao                                      University of Georgia                      1996

"FT-IR Spectrometry and Capillary Electrophoresis in the Study of Carbohydrates"  
Current Employment: Johnson & Johnson, King of Prussia, PA.

Randall Todd Bishop                      University of Georgia                      1997  
"Solution Conformation of Peptides and Proteins under Reversed-Phase Chromatography  
by Particle Beam LC/FT-IR Spectrometry"  
Current Employment: Glaxo-Wellcome, Research Triangle Park, NC.

Richard Andrew Todebush                      University of Georgia                      2001  
"FT-IR Detection System for Capillary Electrophoresis and a Novel Deposition method  
for ATR"  
Current Employment: Kiel Laboratories, Gainesville, GA.

Richard Brian Melkowitz                      University of Georgia                      2002  
"The Analysis of Complex Carbohydrates by Fourier Transform Infrared  
Microspectrometry and Single-Bounce Attenuated Total Reflection Spectrometry"  
Current Employment: Noveon Plastics, Cleveland, OH.

Jessica Lea Jarman                      University of Georgia                      2003  
"Developments in Capillary Electrophoretic Instrumentation and FT-IR  
Spectrometric Detection, and Semi-Automated FT-IR Spectrometric Sample Deposition"  
Current Employment: GE Plastics, Mt. Vernon, IN

Andrew Gardner Adams Thomas                      University of Georgia                      2003  
"FT-IR Spectrometric Studies of Carbohydrates and Proteins"  
Current Employment: Gainesville College, Gainesville, GA.

### **Theses Directed**

Kalam Abul Mir                      University of Georgia                      1985  
"Computerized Structure Elucidation in Infrared Spectrometry"  
Current Employment: Formerly employed by the Armed Forces Food & Drug  
Laboratory, Bangladesh, now pursuing a Ph.D. at Queen's University, Kingston, Ontario,  
Canada

Cindy Robin Friedman                      University of Georgia                      1985  
"Gas Phase Rapid-Scanning Fourier Transform Infrared/Time-Resolved Spectrometry"  
Current Employment: Formerly employed by Spectra-Tech, Inc., Shelton, CT. Now  
marketing manager for a manufacturer of health equipment.

Hilda Velazquez                      University of Georgia                      1985  
"Very Wide-Bore Capillary Gas Chromatography"  
Current Employment: Universidad Nacional Experimental del Tachira, Venezuela

Maritza Ivonne Quiñones                      University of Georgia                      1986  
"Wide Bore Capillary Gas Chromatography/Fourier Transform Infrared Spectrometry"  
Current Employment: United States Department of Agriculture, Athens, GA.

Seldon Penn Weaver                      University of Georgia                      1986  
"Gas-Phase Rapid-Scanning Fourier Transform Infrared/Time-Resolved Spectrometry (FT-IR/TRS)"  
Current Employment: Amorphous Silicon, Inc. Moses Lake, WA.

Julie Lynne Hust                      University of Georgia                      1991  
"A Window Fourier Domain Structural Search System"  
Current Position: unknown. Received doctorate in Chemical Education at Ohio University; may be teaching at the high school level.

Joel Allen Caughran                      University of Georgia                      1994  
"Correlations Between the Mechanical Properties and Attenuated Total Reflectance Infrared Spectra of Polyurethane Foams"  
Current Employment: Department of Chemistry, University of Georgia, Athens, GA.

William Maddux McClarin, III                      University of Georgia                      1995  
"Investigations of a Chiral Separation Mechanism Using Fourier Transform Infrared Spectrometry and Two-Dimensional Nuclear Magnetic Resonance Spectrometry"  
Current Employment: Thiele-Kaolin Corporation, Sandersville, GA.

Melissa Chanda Berry Medlin                      University of Georgia                      1996  
"Analytical Evaluation of Dialkyl Phosphates as Indicators of Organophosphorus Pesticide Exposure"  
Current Employment: Kimberly Clarke Corporation, Doraville, GA.

Yu Cang                      University of Georgia                      2000  
"Studies of Processed Cotton Fabrics and Dental restorative Resin Materials with the Use of Fourier Transform infrared Spectrometry"  
Current Employment: unknown. Pursued a graduate degree in Computer Science at the University of North Carolina at Charlotte.

Ushiri Kulatunga                      University of Georgia                      2000  
"Separation of Monosaccharides Found in Glycoproteins by Capillary Electrophoresis"  
Current Employment: Instructor, Athens Technical College, Athens, GA.

Tracey Leigh Cash                      University of Georgia                      2001  
"Applications of Capillary Electrophoretic Analysis"  
Current Employment: Eli Lilly and Company, Indianapolis, IN.

### **Postdoctoral Research Associates**

Vincent E. Turula, Jr, 1995-1996  
Current Employment: Wyeth Vaccines, Research Triangle Park, NC.

Lin-Tao He, 1996-1997.  
Current Employment: Beijing Institute of Microchemistry, Beijing, China.

## Editorial responsibilities

- Associate Editor:** *Applied Spectroscopy* (1982-1993)  
*Applied Spectroscopy Reviews* (1995 -2001)
- Journal Referee:** *American Chemical Society Audio Courses*  
*American Chemical Society Symposium Series*  
*American Society for Testing and Materials Special Publications*  
*Analytical Chemistry*  
*Applied Spectroscopy*  
*Biophysical Journal*  
*Chemometrics and Intelligent Laboratory Systems*  
*Energy & Fuels*  
*Journal of Agricultural and Food Science*  
*Journal of the American Chemical Society*  
*Journal of Chemical Information and Computer Science*  
*Journal of Chromatography*  
*Journal of Chromatography A*  
*Journal of Computational Chemistry*  
*Journal of Environmental Monitoring*  
*Journal of High Resolution Chromatography and Chromatographic Communications*  
*Journal of Molecular Structure*  
*Journal of Physical Chemistry*  
*LC/GC The Magazine of Separation Science*  
*Planta*  
*Science*  
*Spectrochimica Acta, Part B*  
*Spectroscopy*  
*Talanta*  
*The Analyst*

## Papers Presented at Scientific Meetings

### Keynote Addresses

- de Haseth, J. A., "New Trends in Biomedical FT-IR Spectrometry", presented at the Fifth International Symposium on New Spectroscopic Methods in Biomedical Research, Seattle, Washington, October 1986.
- de Haseth, J. A., "Vibrational Spectrometry: Abreast with New Technology," presented at the First Australian Conference on Vibrational Spectroscopy, Sydney, New South Wales, Australia, February, 1995.

de Haseth, J. A., "Data Processing Pitfalls: Possible Problems with Spectral Data Processing and Sample Preparation," presented at the Third International Infrared Users' Group Meeting [of Art Conservationists and Art Preservationists], Winterthur, Delaware, May 28-30, 1998.

### **Plenary**

de Haseth, J. A., "Mathematics of Spectral Treatment in the Fourier Domain", presented at the 1985 International Conference on Fourier Transform and Computerized Infrared Spectroscopy, Ottawa, Ontario, Canada, June, 1985.

de Haseth, J. A., "MAGIC, VCD and Other Improbable Techniques", presented at the Meeting of the Infrared and Raman Discussion Group of Great Britain, King's College, University of London, London, England, December 15, 1988.

de Haseth, J. A., "Mid-Infrared Fibers and Probes," presented at the 10th International Conference on Fourier Transform Spectroscopy, Budapest, Hungary, August, 1995.

de Haseth, J.A., V.E. Turula, R.T. Bishop, and R. Zhao, "LC and CE/FT-IR Spectrometry in Trace Analysis," presented at the 26th International Symposium on Environmental Analytical Chemistry, Vienna, Austria, April, 1996.

de Haseth, J. A., "A Metal Nebulizer Capillary Electrophoresis/FT-IR Spectrometric Interface," Fifth International Symposium on Hyphenated Techniques in Chromatography and Hyphenated Chromatographic Analyzers, Bruges, Belgium, February, 2000.

de Haseth, J. A., "Capillary Electrophoresis/FT-IR Spectrometry," 30th International Symposium on Environmental Analytical Chemistry, Espoo, Finland, August, 2000.

### **Invited Presentations in Symposia**

de Haseth, J. A., "Bibliographic Text Searching on a Minicomputer", presented at the American Society Workshop on Computers in Chemistry, Chicago, Illinois, August 1975.

Isenhour, T. L., J. A. de Haseth, G. T. Rasmussen, and W. S. Woodward, "Visual Information Interpretation - A Low Cost Color Display System", presented at the Third Annual Meeting of the Federation of Analytical Chemistry and Spectroscopy Societies, Philadelphia, Pennsylvania, November 1976.

de Haseth, J. A., and T. L. Isenhour, "An Information Theoretical Approach to the Determination of Secondary Structure in Globular Proteins", presented at the 173rd American Chemical Society National Meeting, New Orleans, Louisiana, March 1977.

de Haseth, J. A., "An Interferogram-Based Search System for Vapor Phase Fourier Transform Data", presented at the Eighth Annual Meeting of the Federation of Analytical Chemistry and Spectroscopy Societies, Philadelphia, Pennsylvania, September 1981.

- de Haseth, J. A., and D. F. Leclerc, "Fractal Analysis Applied to Interferometric Searches", presented at the Ninth Annual Meeting of the Federation of Analytical Chemistry and Spectroscopy Societies, Philadelphia, Pennsylvania, September 1982.
- de Haseth, J. A., "Spectral Transformation: An Identification Tool", presented at the ASTM E-13.03 Infrared Spectroscopy Symposium, "The Computer: Friend or Foe", Ninth Annual Meeting of the Federation of Analytical Chemistry and Spectroscopy Societies, Philadelphia, Pennsylvania, September 1982.
- de Haseth, J. A., "Fractal Analysis of Time Domain Data", presented at the 36th Annual Summer Symposium on Analytical Chemistry, "Fourier Transforms and Their Applications to Instrumental Analysis", Lincoln, Nebraska, June 1983.
- de Haseth, J. A., "Stroboscopic FT-IR Spectroscopy - Past, Present and Future", presented at the 36th Annual Summer Symposium on Analytical Chemistry, "Fourier Transforms and Their Applications to Instrumental Analysis", Lincoln, Nebraska, June 1983.
- de Haseth, J. A., S. P. Weaver, P. T. Richardson, and R. J. Romañach, "Considerations on the Chromatography/Spectrometry Interface", presented at the 23rd Annual Eastern Analytical Symposium, New York, New York, November 14, 1984.
- de Haseth, J. A., D. F. Leclerc, and P. T. Richardson, "Fourier Transforms for Spectral Identification", presented at the 23rd Annual Eastern Analytical Symposium, New York, New York, November 15, 1984.
- de Haseth, J. A., and D. F. Leclerc, "Scaling Fractals in Spectrometry", presented at the 23rd Annual Eastern Analytical Symposium, New York, New York, November 15, 1984.
- de Haseth, J. A., "Fourier Domain Infrared Spectral Recognition", presented at the First Conference on Spectral Pattern Recognition, Aberdeen Proving Ground, Maryland, December 11, 1984.
- de Haseth, J. A., "Pesticide Analysis by GC and LC/FT-IR Spectrometry", presented at the 15th Annual Symposium on the Analytical Chemistry of Pollutants, Jekyll Island, Georgia, May 21, 1985.
- de Haseth, J. A., "Fractals: Discrete Mathematics for Optimization of Signal Versus Noise", presented at the Gordon Conference on Analytical Chemistry, New Hampton, New Hampshire, August 14, 1985.
- de Haseth, J. A. and R. J. Romañach, "High Speed Countercurrent Chromatography/Fourier Transform Infrared Spectrometry", presented at the 24th Annual Eastern Analytical Symposium, New York, New York, November 21, 1985.
- de Haseth, J. A., "High Speed Countercurrent Chromatography/Fourier Transform Infrared Spectrometry", presented at the 39th Annual Summer Symposium on Analytical

Chemistry, "Chromatographic/Spectroscopic Combinations", Salt Lake City, Utah, June 18, 1986.

de Haseth, J. A., "Computer-Assisted Identification of Infrared Spectra", presented at the Third International Conference on Diffuse Reflectance Spectroscopy, Chambersburg, Pennsylvania, August 20, 1986.

de Haseth, J. A. and R. J. Romañach, "CCC/FT-IR Spectrometry", presented at the 13th Annual Meeting of the Federation of Analytical Chemistry and Spectroscopy Societies, St. Louis, Missouri, October 3, 1986.

de Haseth, J. A., "New Trends in FT-IR: An Overview", presented at the 25th Annual Eastern Analytical Symposium, New York, New York, October 23, 1986.

de Haseth, J. A., "Fractals in FT-IR Spectrometry", presented at the Second Annual Scientific Computing and Automation Conference and Exposition, Atlantic City, New Jersey, November 7, 1986.

de Haseth, J. A., "Introduction to Fourier Transform Infrared Spectrometry", presented at the 193rd American Chemical Society National Meeting, Denver Colorado, April 5, 1987.

de Haseth, J. A., "Qualitative and Quantitative Analysis in the Fourier Domain", presented at the 193rd American Chemical Society National Meeting, Denver, Colorado, April 8, 1987.

de Haseth, J. A. and C. A. McCoy, "Advances in VCD-FT-IR Spectrometry", presented at the Pacific Conference on Chemistry and Spectroscopy, Irvine, California, October 29, 1987.

de Haseth, J. A., "Chemical Instrumentation Based upon the Fourier Transformation", presented at the Third Chemical Congress of North America, Toronto, Ontario, Canada, June 7, 1988.

de Haseth, J. A., "MAGIC-LC/FT-IR Spectrometry", presented at the 18th International Symposium on Environmental Analytical Chemistry and the 4th International Congress on Analytical Techniques in Environmental Chemistry, Barcelona, Spain, September 5, 1988.

de Haseth, J. A. and R. M. Robertson, "MAGIC-LC/FT-IR Spectrometry", presented at the Benedetti-Pichler Award Symposium Honoring Professor Richard F. Browner, 27th Eastern Analytical Symposium, New York, New York, October 6, 1988.

de Haseth, J. A. and C. A. McCoy, "FT-IR Vibrational Circular Dichroism Spectrometry: Status and Applications", 27th Eastern Analytical Symposium, New York, New York, October 7, 1988.

de Haseth, J. A., R. M. Robertson, and R. F. Browner, "MAGIC-LC/FT-IR Spectrometry", presented at the 15th Federation of Analytical and Spectroscopy Societies Meeting, Boston, Massachusetts, November 1, 1988.



- de Haseth, J. A., "Hyphenated Methods in Fourier Transform Infrared Spectrometry", presented at the Infrared and Raman Discussion Group of The Netherlands, The University of Utrecht, Holland, August 25, 1989.
- Browner, R. F. and J. A. de Haseth, "A Novel Interface for LC-Infrared Spectroscopy", presented at the International Symposium on Detection in Liquid Chromatography and Flow Injection Analysis (HPLC/FIA), Córdoba, Spain, September 21, 1989.
- de Haseth, J. A. and J. E. Andrews, "Fiber Optics Applications in the Mid-Infrared", presented at the 16th Federation of Analytical Chemistry and Spectroscopy Societies Meeting, Chicago, Illinois, October, 1989.
- de Haseth, J. A., R. M. Robertson, and G. K. Ferguson, "A Practical Full Bandwidth Detector for Liquid Chromatography", presented at the 16th Federation of Analytical Chemistry and Spectroscopy Societies Meeting, Chicago, Illinois, October, 1989.
- de Haseth, J. A. and R. F. Browner, "Development of a MAGIC Interface for HPLC/FT-IR", presented at the 13th Annual Conference on Analysis of Pollutants in the Environment, Norfolk, Virginia, May 9, 1990.
- de Haseth, J. A., "An Infrared Detection System for Liquid Chromatography", presented at the North Jersey Chromatography Meeting, Norwalk, Connecticut, June 8, 1990.
- de Haseth, J. A., "Infrared Spectrometry of Non-Traditional Samples", presented at the 11th Biennial Conference on Chemical Education, Atlanta, Georgia, August 7, 1990.
- Andrews, J. E. and J. A. de Haseth, "Kinetic Studies with the Use of Mid-Infrared Fibers", presented at 17th Federation of Analytical Chemistry and Spectroscopy Societies Meeting, Cleveland, Ohio, October 9, 1990.
- de Haseth, J. A., "Why FT-IR? An Overview", presented at the 35th Annual Meeting of the Biophysical Society, San Francisco, California, February 25, 1991.
- de Haseth, J. A. and J. E. Andrews, "Polyurethane Monitoring by Mid-Infrared Fiber Fourier Transform Spectrometry", presented at the 8th International Conference on Fourier Transform Spectroscopy, Lübeck-Travemünde, Germany, September 1-6, 1991.
- de Haseth, J. A., "Mid-infrared Fibers in Flexible Foams", presented at the Joint Meeting Federation of Analytical Chemistry and Spectroscopy Societies/Pacific Conference, Anaheim, California, October 6-11, 1991.
- de Haseth, J. A., R. D. Priester, Jr., J. V. McCluskey, and D. Cortelek, "Mid-Infrared Fiber Monitoring of RIM Polyurethanes", presented at the Joint Meeting Federation of Analytical Chemistry and Spectroscopy Societies/Pacific Conference, Anaheim, California, October 6- 11, 1991.

- de Haseth, J. A., "Mid-Infrared Fiber Probes," presented at the Società Chimica Italiana, Divisione di Chimica Analytica, Gargnano (Brescia), Italy, April 22-23, 1992.
- de Haseth, J. A., "Polymer Monitoring with Mid-IR Fibers", presented at the International Symposium on Optical Tools for Manufacturing and Advanced Automation, Boston, Massachusetts, September 7-10, 1993.
- de Haseth, J. A., "Historical Perspectives of FT-IR Analytical Techniques", presented at the International Symposium on Optical Sensing for Environmental Monitoring, Atlanta, Georgia, October 11-14, 1993.
- de Haseth, J. A., R. Zhao, S. A. Bhat, X. Liang, and R. A. Dluhy, "Mid- and Near-IR Fiber Probes," presented at the 21st Federation of Analytical Chemistry and Spectroscopy Societies Meeting, St. Louis, Missouri, October, 1994.
- de Haseth, J. A., "The Use of Mid-Infrared Fibers in Polymer Analysis," presented at the First Australian Conference on Vibrational Spectroscopy, Sydney, New South Wales, Australia, February, 1995.
- de Haseth, J. A., "Vibrational Circular Dichroism/Fourier Transform Infrared Spectrometry of the Mechanisms in Chiral Separations," presented at the First Australian Conference on Vibrational Spectroscopy, Sydney, New South Wales, Australia, February, 1995.
- de Haseth, J. A., "The Investigation of Protein Conformation with the Use of Particle Beam/Infrared Spectrometry," presented at the First Australian Conference on Vibrational Spectroscopy, Sydney, New South Wales, Australia, February, 1995.
- de Haseth, J. A., "Infrared Spectrometry in Pesticide Analysis at the Sub-Nanogram Level," presented at the Southeastern Meeting of the Association of Official Analytical Chemists, Atlanta, Georgia, February, 1995.
- de Haseth, J.A., X. Liang, and S.A. Bhat, "Mid-Infrared Fiber Probes as Reaction Monitors," presented at the Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, New Orleans, Louisiana, March, 1995.
- de Haseth, J.A., "Infrared Spectrometry in the Near and Immediate Future," presented at the Eastern Analytical Symposium, Somerset, New Jersey, November, 1995.
- de Haseth, J.A., "Characterization of Protein Folding by Particle Beam FT-IR Spectrometry," presented at the Eastern Analytical Symposium, Somerset, New Jersey, November, 1995.
- de Haseth, J.A., V.E. Turula, and R.T. Bishop, "Protein Conformation by Particle Beam Infrared Spectrometry," presented at the Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Chicago, Illinois, March, 1996.

- de Haseth, J. A., "Measurement of Dynamic Protein Conformation by Particle Beam LC/FT-IR Spectrometry," presented at the Eastern Analytical Symposium, Somerset, New Jersey, November, 1997.
- de Haseth, J. A., "Capillary Electrophoresis/FT-IR Spectrometry," to be presented at the Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, New Orleans, Louisiana, March, 1998.
- de Haseth, J. A., "Combination of Proteolytic Digest and Deuterium Labeling for the Determination of Protein Structure," to have been presented at the American Chemical Society National Meeting, Boston, Massachusetts, August 23-27, 1998. [Withdrew; death in family.]
- de Haseth, J. A., "Particle Beam LC/FT-IR and CE/FT-IR Spectrometry," presented at the Spectroscopy Society of Japan National Meeting, Osaka, Japan, November 19-20, 1998.
- de Haseth, J. A., "Hyphenated Techniques and FT-IR Spectrometry: What's Wrong?," invited for presentation at the Eastern Analytical Symposium, Somerset, New Jersey, November, 1998. [Declined: this symposium coincided with the lectures in Japan.]
- de Haseth, J. A., "Successive Average Orthogonalization and Iterative Target Transformation Factor Analysis," Lectures on Chemometrics, Waseda University, Tokyo, Japan, August 22, 1999.
- de Haseth, J. A., "The Drive for Ultimate Sensitivity: Interfaces Between Separations Technologies and FT-IR Spectrometry," presented in the Williams-Wright Award Symposium at the Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, New Orleans, Louisiana, March 2001.
- de Haseth, J. A., "Composition of Oligosaccharides with the Use of Chemometrics and Infrared Spectrometry," presented at IUPAC International Congress on Analytical Sciences, Waseda University, Tokyo, Japan, August 7, 2001.
- de Haseth, J. A., "Errors and Anomalies in FTS," presented at the First International Conference on Advanced Vibrational Spectroscopy pre-conference symposium, Turku, Finland, August 21, 2001.
- de Haseth, J. A., "Specular and Internal Reflection Spectrometry," presented at the First International Conference on Advanced Vibrational Spectroscopy pre-conference symposium, Turku, Finland, August 21, 2001.
- de Haseth, J. A., "Univariate and Multivariate Quantitative Analysis," presented at the First International Conference on Advanced Vibrational Spectroscopy pre-conference symposium, Turku, Finland, August 21, 2001.

de Haseth, J. A., R. A. Todebush, and J. L. Jarman, "Capillary Electrophoresis/Fourier Transform Infrared Spectrometry," presented at the Seventh International Symposium on Hyphenated Techniques in Chromatography, Brugges, Belgium, February 6-8, 2002.

de Haseth, J. A. and J. L. Jarman, "Capillary Electrophoresis/FT-IR Spectrometry: How Small and How Useful?" to be presented in the Bomem-Michelson Award Symposium at the Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Orlando, Florida, March 2003.

Barton II, F. E., D. S. Himmelsbach, J. A. de Haseth, W. R. Windham, and W. H. Smith, "The Use of Interferometers and Imaging Spectrometers for Agricultural Applications," presented at the Australian NIR Group Meeting, Freemantle, W.A., Australia, April 17-20, 2004.

Barton II, F. E., J. A. de Haseth, and D. S. Himmelsbach, "Moving from the Laboratory to the Field with NIR," International Diffuse Reflectance Conference, Chambersburg, PA, August 8-13, 2004.

Himmelsbach, D. S., F. E. Barton II, and J. A. de Haseth, "Use of Two-dimensional Vibrational Correlation with Near-, Mid-Infrared and Raman Spectroscopy to Study Agricultural Problems," presented at the 31<sup>st</sup> Federation of Analytical Chemistry and Spectroscopy Societies Meeting, Portland, OR, October 3-7, 2004.

de Haseth, J. A., F. E. Barton II, and D. S. Himmelsbach, "End User Specification and justification of a New Field-Ready NIR Spectrometer Design," presented at the 31<sup>st</sup> Federation of Analytical Chemistry and Spectroscopy Societies Meeting, Portland, OR, October 3-7, 2004.

Barton II, F. E., J. A. de Haseth, and D. S. Himmelsbach, "Applications for a New Series of NIR Spectrometers," presented at the 31<sup>st</sup> Federation of Analytical Chemistry and Spectroscopy Societies Meeting, Portland, OR, October 3-7, 2004.

de Haseth, J. A. and Shelly I. Seerley, "Attenuated Total Reflection Direct-Deposition Nanosampler," presented at the 31<sup>st</sup> Federation of Analytical Chemistry and Spectroscopy Societies Meeting, Portland, OR, October 3-7, 2004.

Barton II, F. E., J. A. de Haseth, and D. S. Himmelsbach, "Applications for a New Series of NIR Spectrometers," presented at the Eastern Analytical Symposium, Sommerset, NJ, November 15-18, 2004.

Barton II, F. E., J. A. de Haseth, and D. S. Himmelsbach, "New Instruments for Measuring the Quality of Agricultural Commodities," presented at the 33<sup>rd</sup> U.S. Japan Natural Resource Panel, Honolulu, HI, December 9-17, 2004.

Himmelsbach, D. S., F. E. Barton, and J. A. de Haseth, "Using Two-Dimensional Vibrational Correlation Spectroscopy to Study Agricultural Programs," presented at the 33<sup>rd</sup> U.S. Japan Natural Resource Panel, Honolulu, HI, December 9-17, 2004.

### **Submitted Presentations**

- Isenhour, T. L., H. B. Woodruff, S. R. Lowry, and J. A. de Haseth, "Text-Searching of Chemical Data Bases", presented at the 170th American Chemical Society National Meeting, Chicago, Illinois, August, 1975.
- de Haseth, J. A., H. B. Woodruff, and T. L. Isenhour, "Applications of Text-Searching for the Detection of Errors in Chemical Data Bases", presented at the 170th American Chemical Society National Meeting, Chicago, Illinois, August, 1975.
- de Haseth, J. A., W. S. Woodward, and T. L. Isenhour, "Direct Computer Encoding of Recorded Spectra", presented at the 27th Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Cleveland, Ohio, March, 1976.
- de Haseth, J. A., H. B. Woodruff, S. R. Lowry, and T. L. Isenhour, "Text-Searching Applied to Mass Spectroscopy", presented at the 27th Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Cleveland, Ohio, March, 1976.
- Rasmussen, G. T., J. A. de Haseth, W. S. Woodward, S. R. Lowry, and T. L. Isenhour, "Two Years Experience with an In-House Chemical Abstracts Current Awareness Service", presented at the 27th Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Cleveland, Ohio, March, 1976.
- de Haseth, J. A., and T. L. Isenhour, "The Direct Reconstruction of Gas Chromatograms from Interferometric GC/IR Data", presented at the Second International Conference on Fourier Transform Infrared Spectroscopy, Columbia, South Carolina, June, 1977.
- de Haseth, J. A., A. A. Garrison, R. A. Crocombe, and G. Mamantov, "Time Resolved Infrared Investigations of Photolysis of Small Molecules", presented at the 31st Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Atlantic City, New Jersey, March, 1980.
- de Haseth, J. A., and L. V. Azarraga, "Initial Attempts to Reduce Interferometric Data for Efficient Infrared Searches", presented at the 32nd Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Atlantic City, New Jersey, March, 1981.
- de Haseth, J. A., "Analysis of Spectral Anomalies in Rapid Scanning Fourier Transform Time-Resolved Infrared Spectrometry (TRS)", presented at the Third International Conference on Fourier Transform Infrared Spectroscopy, Columbia, South Carolina, June, 1981.
- de Haseth, J. A., "Interferometer Stability in Gas Chromatography/Fourier Transform Infrared Spectroscopy", presented at the Third International Conference on Fourier Transform Infrared Spectroscopy, Columbia, South Carolina, June, 1981.
- Azarraga, L. V., R. R. Williams, and J. A. de Haseth, "Initial Results from an Interferogram-Based Search System for GC/FT-IR", presented at the Third International Conference on Fourier Transform Infrared Spectroscopy, Columbia, South Carolina, June, 1981.

- de Haseth, J. A., and D. F. Leclerc, "Fractal Analysis Applied to FT-IR Interferograms", presented at the 33rd Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Atlantic City, New Jersey, March, 1982.
- Leclerc, D. F., and J. A. de Haseth, "Interferogram Data Processing in FT-IR", presented at the 33rd Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Atlantic City, New Jersey, March, 1982.
- de Haseth, J. A., and D. F. Leclerc, "Fractal Analysis Applied to Time Domain Signals", presented at the Ninth Annual Meeting of the Federation of Analytical Chemistry and Spectroscopy Societies, Philadelphia, Pennsylvania, September, 1982.
- Leclerc, D. F., and J. A. de Haseth, "Fractal Analysis and FT-IR", presented at the Ninth Annual Meeting of the Federation of Analytical Chemistry and Spectroscopy Societies, Philadelphia, Pennsylvania, September, 1982.
- Leclerc, D. F., and J. A. de Haseth, "Fractal Analysis Applied to Time-Domain Data Traces", presented at the 34th Southeastern Regional Meeting of the American Chemical Society, Birmingham, Alabama, November, 1982.
- Richardson, P. T., and J. A. de Haseth, "Improvements in Real-Time Analysis of GC/FT-IR Chromatograms", presented at the 34th Southeastern Regional Meeting of the American Chemical Society, Birmingham, Alabama, November, 1982.
- Weaver, S. P., and J. A. de Haseth, "Preliminary Studies in GC Parameters for GC/FT-IR", presented at the 34th Southeastern Regional Meeting of the American Chemical Society, Birmingham, Alabama, November, 1982.
- Lephardt, J. O., and J. A. de Haseth, "An Alternative Chromatogram Reconstruction Technique for GC/FT-IR", presented at the 34th Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Atlantic City, New Jersey, March, 1983.
- Leclerc D. F., and J. A. de Haseth, "The Fractal Dimension of Time-Domain Signals: Analysis and Applications to Transform Techniques", presented at the 34th Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Atlantic City, New Jersey, March, 1983.
- Richardson, P. T., and J. A. de Haseth, "A Novel Algorithm for the Isolation of Eluate Peaks in GC/FT-IR Reconstructed Chromatograms", presented at the 34th Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Atlantic City, New Jersey, March, 1983.
- Weaver, S. P., and J. A. de Haseth, "Modifications of GC Parameters for Improvements in GC/FT-IR", presented at the 34th Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Atlantic City, New Jersey, March, 1983.

Richardson, P. T., and J. A. de Haseth, "An Improved Technique for Processing GC/FT-IR Reconstructed Chromatograms", presented at the 13th Annual Symposium on the Analytical Chemistry of Pollutants, Jekyll Island, Georgia, May, 1983.

de Haseth, J. A., "The Gram-Schmidt Vector Orthogonalization Algorithm and Its Applications to FT-IR", presented at the 4th International Conference on Fourier Transform Spectroscopy, Durham, U. K., September, 1983.

de Haseth, J. A., "Spectral Search Techniques in FT-IR Spectroscopy", presented at the 35th Southeastern Regional Meeting of the American Chemical Society, Charlotte, North Carolina, November, 1983.

Leclerc, D. F., and J. A. de Haseth, "Scaling Fractals in FT-IR", presented at the 35th Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Atlantic City, New Jersey, March, 1984.

Coates, J. P., and J. A. de Haseth, "An Evaluation of Infrared Search Algorithm Philosophies for Practical Analytical Applications", presented at the 36th Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, New Orleans, Louisiana, February, 1985.

Romañach, R. J., and J. A. de Haseth, "High Speed Countercurrent Chromatography/Fourier Transform Infrared Spectrometry", presented at the 36th Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, New Orleans, Louisiana, February, 1985.

Richardson, P. T., and J. A. de Haseth, "An Interferogram Based Structure Elucidation Algorithm for Gas Chromatography/Fourier Transform Infrared Spectrometry", presented at the 36th Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, New Orleans, Louisiana, February, 1985.

Friedman, C. R., S. P. Weaver, and J. A. de Haseth, "Gas-Phase Time-Resolved Rapid-Scanning Fourier Transform Infrared (FT-IR) Spectrometry", presented at the 36th Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, New Orleans, Louisiana, February, 1985.

de Haseth, J. A., "Time Resolved Fourier Transform Infrared Spectrometry - Temperature Jump Experiments", presented at the Southeastern Association of Analytical Chemists Meeting, Athens, Georgia, April, 1985.

Romañach, R. J., J. A. de Haseth, and Y. Ito, "High Speed Countercurrent Chromatography/Fourier Transform Infrared (HSCCC/FT-IR) Spectrometry - Preliminary Studies", Seventh Atlanta Chromatography Symposium, Atlanta, Georgia, May, 1985.

- Friedman, C. R., and J. A. de Haseth, "Rapid Scanning FT-IR/Time Resolved Spectrometry (TRS) for Gas Phase Systems", presented at the Fifth International Conference on Fourier and Computerized Infrared Spectroscopy, Ottawa, Ontario, Canada, June, 1985.
- Richardson, P. T., and J. A. de Haseth, "Structural Analysis Using Interferometric Data", presented at the Fifth International Conference on Fourier and Computerized Infrared Spectroscopy, Ottawa, Ontario, Canada, June, 1985.
- Weaver, S. P., and J. A. de Haseth, "Methods Development for Rapid-Scanning Gas Phase Fourier Transform Infrared/Time-Resolved (FT-IR/TRS) Spectrometry", presented at the Fifth International Conference on Fourier and Computerized Infrared Spectroscopy, Ottawa, Ontario, Canada, June, 1985.
- Romañach, R. J., and J. A. de Haseth, "High Speed Countercurrent Chromatography/Fourier Transform Infrared (HSCCC/FT-IR) Spectrometry", presented at the Fifth International Conference on Fourier and Computerized Infrared Spectroscopy, Ottawa, Ontario, Canada, June, 1985.
- Tripodi, E. V., and J. A. de Haseth, "The Determination of the Secondary Structure of Proteins Using an Information Theoretical Approach", presented at the 37th Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Atlantic City, New Jersey, March, 1986.
- McCoy, C. A., and J. A. de Haseth, "Phase Correction in Vibrational Circular Dichroism FT-IR Spectrometry", presented at the 37th Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Atlantic City, New Jersey, March, 1986.
- McCoy, C. A., and J. A. de Haseth, "Peak Identification and Characterization of FT-IR Vapor Phase Spectra", presented at the 37th Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Atlantic City, New Jersey, March, 1986.
- Romañach, R. J., and J. A. de Haseth, "High Speed Countercurrent Chromatography/Fourier Transform Infrared (CCC/FT-IR) Spectrometry", presented at the 37th Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Atlantic City, New Jersey, March, 1986.
- de Haseth, J. A., "Countercurrent Chromatography/Fourier Transform Infrared (CCC/FT-IR) Spectrometry", presented at the Southeastern Association of Analytical Chemists Meeting, Greenville, North Carolina, April, 1986.
- McCoy, C. A., and J. A. de Haseth, "Advances in Phase Correction of Vibrational Circular Dichroism FT-IR Spectrometry", presented at the 13th Annual Meeting of the Federation of Analytical Chemistry and Spectroscopy Societies, St. Louis, Missouri, September, 1986.



- Tripodi, E. V., and J. A. de Haseth, "Computer-Assisted Prediction of Globular Protein Structure", presented at the 38th Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Atlantic City, New Jersey, March, 1987.
- Robertson, R. M., J. A. de Haseth, and R. F. Browner, "MAGIC-LC/FT-IR Spectrometry", presented at the Sixth International Conference on Fourier Transform Spectroscopy, Vienna, Austria, August 1987.
- Sherman, D. C. and J. A. de Haseth, "Temperature-Jump FT-IR Time-Resolved Spectrometry", presented at the Sixth International Conference on Fourier Transform Spectroscopy, Vienna, Austria, August 1987.
- Sherman, J. W. and J. A. de Haseth, "A Window Fourier Domain Infrared Search System", presented at the Sixth International Conference on Fourier Transform Spectroscopy, Vienna, Austria, August 1987.
- Tripodi, E. V. and J. A. de Haseth, "Incorporation of FT-IR Spectral Data in a Computer-Assisted Prediction of Globular Protein Structure", presented at the Sixth International Conference on Fourier Transform Spectroscopy, Vienna, Austria, August 1987.
- McCoy, C. A. and J. A. de Haseth, "Modified Phase Correction Algorithms in VCD/FT-IR Spectrometry", presented at the Sixth International Conference on Fourier Transform Spectroscopy, Vienna, Austria, August 1987.
- Robertson, R. M., J. A. de Haseth and R. F. Browner, "MAGIC-LC/FT-IR Spectrometry", presented at the 39th Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, New Orleans, Louisiana, February 1988.
- Tripodi, E. V. and J. A. de Haseth, "Prediction of Protein Secondary Structure Using a Combination of FT-IR Spectral Data and an Information Theoretical Approach", presented at the 39th Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, New Orleans, Louisiana, February 1988.
- Sherman, J. W. and J. A. de Haseth, "Effects of Contaminants and Mixtures on Window Fourier Domain Search Results", presented at the 39th Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, New Orleans, Louisiana, February 1988.
- McCoy, C. A. and J. A. de Haseth, "Modified Phase Correction Algorithms in VCD/FT-IR Spectrometry", presented at the 39th Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, New Orleans, Louisiana, February 1988.
- de Haseth, J. A., "VCD-FT-IR Spectrometry", presented at the Southeastern Association of Analytical Chemists Meeting, Knoxville, Tennessee, April 22, 1988.
- McCoy, C. A. and J. A. de Haseth, "Measurement of VCD Spectra with Minimal Optical Bias", presented at the 15th Federation of Analytical Chemistry and Spectroscopy Societies Meeting, Boston, Massachusetts, November 3, 1988.

- Still, M. G., L. B. Rogers and J. A. de Haseth, "Fourier Transform Infrared Spectrometry of Complexes Involved in Chiral Separations", presented at the 40th Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Atlanta, Georgia, March 1989.
- Robertson, R. M. and J. A. de Haseth, "Transport Efficiency of MAGIC-LC/FT-IR Spectrometry", presented at the 40th Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Atlanta, Georgia, March 1989.
- Nagy, E. V. and J. A. de Haseth, "Statistical Analysis of a Database of Proteins with Known Secondary Structure", presented at the 40th Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Atlanta, Georgia, March 1989.
- McCoy, C. A. and J. A. de Haseth, "A Comparison of Minimal Optical Bias Configuration in the FT-IR Measurement of Vibrational Circular Dichroic Spectra", presented at the 40th Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Atlanta, Georgia, March 1989.
- Andrews, J. A. and J. A. de Haseth, "Fiber Optical FT-IR Spectrometry of Laminates", presented at the 7th International Conference on Fourier Transform Spectroscopy, Fairfax, Virginia, June 1989.
- Ferguson, G. K. and J. A. de Haseth, "Detection Parameters in MAGIC-LC/FT-IR Spectrometry", presented at the 7th International Conference on Fourier Transform Spectroscopy, Fairfax, Virginia, June 1989.
- Sherman, J. W. and J. A. de Haseth, "Classification of Compounds using a Window Fourier Domain System", presented at the 7th International Conference on Fourier Transform Spectroscopy, Fairfax, Virginia, June 1989.
- Sherman, J. W. and J. A. de Haseth, "Optimization of a Window Fourier Search System", presented at the 7th International Conference on Fourier Transform Spectroscopy, Fairfax, Virginia, June 1989.
- Robertson, R. M., J. A. de Haseth and R. F. Browner, "Buffered Mobile Phases with MAGIC-LC/FT-IR", presented at the 7th International Conference on Fourier Transform Spectroscopy, Fairfax, Virginia, June 1989.
- Robertson, R. M., G. K. Ferguson, and J. A. de Haseth, "MAGIC-LC/FT-IR: No Chromatographic Compromise", presented at the 16th Federation of Analytical Chemistry and Spectroscopy Societies Meeting, Chicago, Illinois, October, 1989.
- Ferguson, G. K. and J. A. de Haseth, "Optimization of Desolvation Parameters for MAGIC-LC/FT-IR Spectrometry", presented at the 16th Federation of Analytical Chemistry and Spectroscopy Societies Meeting, Chicago, Illinois, October, 1989.

- Lü, X-J., L. B. Rogers, and J. A. de Haseth, "The Studies of Enantioselective Interaction in Chiral Separations by Fourier Transform Infrared Spectrometry", presented at the 16th Federation of Analytical Chemistry and Spectroscopy Societies Meeting, Chicago, Illinois, October, 1989.
- Andrews, J. E. and J. A. de Haseth, "Investigation of Polymer Kinetics with Infrared Fiber Optics", presented at the 16th Federation of Analytical Chemistry and Spectroscopy Societies Meeting, Chicago, Illinois, October, 1989.
- Sherman, J. W., G. K. Ferguson, and J. A. de Haseth, "Principal Component Regression Analysis of Polyurethane Plaques Using Attenuated total Reflectance Spectra", presented at the 16th Federation of Analytical Chemistry and Spectroscopy Societies Meeting, Chicago, Illinois, October, 1989.
- Harthcock, M. A., S. Nitzsche, B. L. Davis, J. A. de Haseth, and R. M. Robertson, "Functional Group Images (FGI) by Infrared Microspectroscopy: Recent Applications and Effective Spatial Resolution Enhancement", presented at the 16th Federation of Analytical Chemistry and Spectroscopy Societies Meeting, Chicago, Illinois, October, 1989.
- Edman, K. R., R. F. Browner, and J. A. de Haseth, "LC-FTIR: Dynamics within the Particle Beam Interface", presented at the 41st Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, New York, New York, March 8, 1990.
- Lü, X-J. and J. A. de Haseth, "The Measurement of Zidovudine in Serum by MAGIC-LC/FT-IR Spectrometry", presented at the 17th Federation of Analytical Chemistry and Spectroscopy Societies Meeting, Cleveland, Ohio, October 9, 1990.
- Lü, X-J., L. B. Rogers, and J. A. de Haseth, "The Studies of Relative Resolving Power in Chiral Separations by Fourier Transform Infrared Spectrometry", presented at the 17th Federation of Analytical Chemistry and Spectroscopy Societies Meeting, Cleveland, Ohio, October 11, 1990.
- Ferguson, G. K., J. A. de Haseth, and R. F. Browner, "Pharmaceutical Separations with MAGIC-LC/FT-IR Spectrometry", presented at the 17th Federation of Analytical Chemistry and Spectroscopy Societies Meeting, Cleveland, Ohio, October 12, 1990.
- Hust, J. L. and J. A. de Haseth, "Optimization of Optical Parameters for MAGIC-LC/FT-IR Spectrometry", presented at the 17th Federation of Analytical Chemistry and Spectroscopy Societies Meeting, Cleveland, Ohio, October 10, 1990.
- Lü, X-J., L. B. Rogers, and J. A. de Haseth, "2D-NMR Studies of the Enantioselective Interaction in Chiral Separations of HPLC", presented at the 42nd Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Chicago, Illinois, March 5, 1991.

- Andrews, J. E. and J. A. de Haseth, "Factor Analysis of Polyurethane Foam Spectra", presented at the 42nd Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Chicago, Illinois, March 6, 1991.
- Edman, K. R., R. F. Browner, and J. A. de Haseth, "Particle Dynamics within the LC-FTIR Particle Beam Interface", presented at the 42nd Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Chicago, Illinois, March 6, 1991.
- Lü, X-J. and J. A. de Haseth, "The Measurement of Zidovudine and Its Metabolite in Urine by MAGIC-LC/FT-IR Spectrometry", presented at the 42nd Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Chicago, Illinois, March 6, 1991.
- Powell, D. A., V. Turula, J. A. de Haseth, H. van Halbeek, and B. Meyer, "Detection of Sulfate in Oligosaccharaides by Neural Network Analysis of Fourier-Transform Infrared Spectra", presented at the 11th International Symposium of Glycoconjugates, Ottawa, Canada, June 1991.
- Turula, V. E., J. A. de Haseth, and R. F. Browner, "Fundamentals of the MAGIC Interface", presented at the 1991 Joint Meeting Federation of Analytical Chemistry and Spectroscopy Societies/Pacific Conference, Anaheim, California, October 6-11, 1991.
- Edman, K. R., R. F. Browner, and J. A. de Haseth, "Particle Dynamics within the LC-FTIR Particle Beam Interface", presented at the 43rd Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, New Orleans, Louisiana, March 9-13, 1992.
- Hust, J. L. and J. A. de Haseth, "A Windowing Fourier Domain Structural Search System", presented at the 43rd Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, New Orleans, Louisiana, March 9-13, 1992.
- Ferguson, G. K., R. F. Browner, and J. A. de Haseth, "Pharmaceutical Separations by MAGIC-LC/FT-IR Spectrometry", presented at the 43rd Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, New Orleans, Louisiana, March 9-13, 1992.
- Liang, X., J. E. Andrews and J. A. de Haseth, "Resolution of Component Spectra Using Successive Average Orthogonalization and Iterative Target Transform Factor Analysis," presented at the 19th Federation of Analytical Chemistry and Spectroscopy Societies Meeting, Philadelphia, Pennsylvania, September 20-25, 1992.
- Turula, Jr., V. E. and J. A. de Haseth, "Estimation of Globular Protein Secondary Structure by Solvent-Elimination MAGIC-LC/FT-IR Spectrometry," presented at the 19th Federation of Analytical Chemistry and Spectroscopy Societies Meeting, Philadelphia, Pennsylvania, September 20-25, 1992.
- Caughran, J. A., W. M. McClarin, III, M. C. Berry, S. A. Bhat, K. Braden, and J. A. de Haseth, "Effect of Surfactant in Polyurethane Foams Monitored by Mid-Infrared Fiber Fourier

Transform Spectrometry," presented at the 19th Federation of Analytical Chemistry and Spectroscopy Societies Meeting, Philadelphia, Pennsylvania, September 20-25, 1992.

Bhat, S. A., M. C. Berry, and J. A. de Haseth, "Mid-Infrared Fiber/Fourier Transform Infrared Spectroscopy Study of Surfactants and Catalysts during Polyurethane Foam Formation", presented at the 44th Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Atlanta, Georgia, March 8-12, 1993.

Edman, K. R., R. F. Browner, and J. A. de Haseth, "Particle Dynamics within the LC/FT-IR Particle Beam Interface", presented at the 44th Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Atlanta, Georgia, March 8-12, 1993.

Turula, V. E. and J. A. de Haseth, "The Use of Particle Beam LC/Fourier Transform Infrared Spectrometry for the Structural Analysis of Globular Proteins: Preliminary Studies with b-Lactoglobulin", presented at the 9th International Conference on Fourier Transform Spectroscopy, Calgary, Alberta, Canada, August 23-27, 1993.

Bhat, S. A., J. A. Caughran, and J. A. de Haseth, "Study of Polyurethane Foam by Mid-Infrared Fiber/Fourier Transform Infrared Spectrometry", presented at the 9th International Conference on Fourier Transform Spectroscopy, Calgary, Alberta, Canada, August 23-27, 1993.

Caughran, J. A., Bhat, S. A., and J. A. de Haseth, "Correlations between Physical Properties, Formulations, and ATR FT-IR Spectra of Polyurethane Foams", presented at the 9th International Conference on Fourier Transform Spectroscopy, Calgary, Alberta, Canada, August 23-27, 1993.

Liang, X. and J. A. de Haseth, "The Studies of Chiral Separation Mechanisms by VCD/FT-IR Spectrometry", presented at the 9th International Conference on Fourier Transform Spectroscopy, Calgary, Alberta, Canada, August 23-27, 1993.

Turula, V. E. and J. A. de Haseth, "Production of Electrostatically Charged Globular Proteins by Induction Charging of a Liquid Jet with Fourier Transform Infrared Microscopy Detection", presented at the 9th International Conference on Fourier Transform Spectroscopy, Calgary, Alberta, Canada, August 23-27, 1993.

Liang, X. and J. A. de Haseth, "Studies of Polyurethane Foam Curing by Factor Analysis", presented at the 9th International Conference on Fourier Transform Spectroscopy, Calgary, Alberta, Canada, August 23-27, 1993.

Turula, V. E. and J. A. de Haseth, "Estimation of Globular Protein Solution Secondary Structure by Solvent Elimination Particle Beam LC/Fourier Transform Infrared Spectrometry: Correlation with Solution Measurements", presented at the 9th International Conference on Fourier Transform Spectroscopy, Calgary, Alberta, Canada, August 23-27, 1993.

- Turula, V. E. and J. A. de Haseth, "Separation and Characterization of Globular Proteins by High Performance Hydrophobic Interaction Chromatography Particle Beam LC/FT-IR Spectrometry", presented at the 45th Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Chicago, Illinois, February 27 - March 4, 1994.
- Liang, X. and J. A. de Haseth, "Studies of Enantioselective Interaction in Chiral Separation with the Use of VCD/FT-IR Spectrometry", presented at the 45th Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Chicago, Illinois, February 27 - March 4, 1994.
- Bhat, S. A. and J. A. de Haseth, "Infrared Temperature Studies of Hydrogen Bonding in Polyurethane Foam", presented at the 45th Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Chicago, Illinois, February 27 - March 4, 1994.
- Zhao, R. and J. A. de Haseth, "Near-IR Studies of Polyurethane Foam by the Use of Sapphire Optical Fiber", presented at the 45th Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Chicago, Illinois, February 27 - March 4, 1994.
- Turula, V. E. and J. A. de Haseth, "Dynamic Solution Structure of Globular Proteins by Reversed-phase HPLC Particle Beam LC/FT-IR Spectrometry", presented at the 46th Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, New Orleans, Louisiana, March 5-10, 1995.
- Bhat, S.A. and J.A. de Haseth, "Correlations of Attenuated Total Reflectance Spectra to Physical Properties of Polyurethane Foams," presented at the 10th International Conference on Fourier Transform Spectroscopy, Budapest, Hungary, August 27 - September 1, 1995.
- Bishop, R. and J.A. de Haseth, "Conformational Effects of Reversed-phase HPLC on Ribonuclease A by Particle Beam LC/FT-IR Spectrometry," presented at the 10th International Conference on Fourier Transform Spectroscopy, Budapest, Hungary, August 27 - September 1, 1995.
- Bhat, S.A. and J.A. de Haseth, "FT-IR Analysis of Polyurethane Foams with the Use of Mid-Infrared Fibers," presented at the 10th International Conference on Fourier Transform Spectroscopy, Budapest, Hungary, August 27 - September 1, 1995.
- Venkateshwaran, T.G., J.T. Stewart, J.A. de Haseth, R.T. Bishop, and V.E. Turula, "HPLC/FT-IR: A New Approach to Study the Stability of Peptides in Parenteral Solutions," presented at the International Symposium of Peptides, Proteins and Polynucleotides '95, Boston, Massachusetts, November, 1995.
- Venkateshwaran, T.G., J.A. de Haseth, R.T. Bishop, and V.E. Turula, "Secondary Structure of Unfolded Proteins by Reversed Phase HPLC Particle Beam/FT-IR Spectrometry and Capillary Zone Electrophoresis," presented at the International Symposium of Peptides, Proteins and Polynucleotides '95, Boston, Massachusetts, November, 1995.

- Turula, V.E., R.T. Bishop, and J.A. de Haseth, "Time-Resolved FT-IR Studies of Protein Folding Mechanisms: Part I. Preparation, Isolation, and Characterization of Unfolded Proteins," presented at the Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Chicago, Illinois, March, 1996.
- Bishop, R.T., V.E. Turula, and J.A. de Haseth, "Time-Resolved FT-IR Studies of Protein Folding Mechanisms: Part II. Particle Beam Detection," presented at the Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Chicago, Illinois, March, 1996.
- Bhat, S.A. and J.A. de Haseth, "Partial Least Squares: Correlation of Physical Properties to Infrared Spectra of Polyurethane Foams," presented at the Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Chicago, Illinois, March, 1996.
- Liang, X. and J.A. de Haseth, "The Study of the Formation and Curing of Flexible Polyurethane Foams by Factor Analysis," presented at the Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Chicago, Illinois, March, 1996.
- Zhao, R. and J.A. de Haseth, "Carbohydrate Analysis Using FT-IR/Microscopy and the Hyphenation of CE/FT-IR Spectrometry," presented at the Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Chicago, Illinois, March, 1996.
- Medlin, M.B., Jain, A.V., and J.A. de Haseth, "A Rapid Method of Detection of Organophosphorus Insecticide Metabolites by Gas Chromatography-Flame Photometric Detection," presented at the Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Chicago, Illinois, March, 1996.
- Venkateshwaran, T.G., J.T. Stewart, J.A. de Haseth, R.T. Bishop, and V.E. Turula, "Secondary Structure Studies of Peptides/Polypeptides using LC/FT-IR: A Method to Estimate the Stability of Peptides/Polypeptides in Parenteral Solutions," presented at the 20th International Symposium on High Performance Liquid Phase Separations (HPLC '96), San Francisco, California, June, 1996.
- Turula, V.E., R.T. Bishop, R.D. Ricker, and J.A. de Haseth, "Complete Structural Elucidation of a Globular Protein by Particle Beam LC/FT-IR and Electrospray LC/MS: Sequence and Conformation of b-Lactoglobulin," presented at the 20th International Symposium on High Performance Liquid Phase Separations (HPLC '96), San Francisco, California, June, 1996.
- Bishop, R. T., J. A. de Haseth, T. G. Venkateshwaran, J. T. Stewart, and M. G. Bartlett, "Conformational Effects of Reversed Phase Chromatography of Rnase A with Electrospray LC-MS and Particle Beam LC/FT-IR Spectrometry," presented at the 8th International Symposium on Pharmaceutical and Biomedical Analysis, Orlando, Florida, May 4-7, 1997.
- He, L-T. and J. A. de Haseth, "Capillary CE/FT-IR Spectrometry," presented at the 27th International Symposium on Environmental Analytical Chemistry, Jekyll Island, Georgia, June, 1997.

- Bishop, R. T., T. G. Venkateshwaran, J. A. de Haseth, J. T. Stewart, and M. G. Bartlett, "Protein Conformational Analysis under Reversed Phase HPLC Conditions by Particle Beam LC/FT-IR Spectrometry and Electrospray LC/MS," presented at the 11th International Conference on Fourier Transform Spectroscopy, Athens, Georgia, August, 1997.
- Bishop, R. T. and J. A. de Haseth, "Deuterium Labeling for Analysis of Reversed-Phase Interaction," presented at the 11th International Conference on Fourier Transform Spectroscopy, Athens, Georgia, August, 1997.
- He, Lin-Tao and J. A. de Haseth, "Metal Nebulizer CE/FT-IR Interface," presented at the 11th International Conference on Fourier Transform Spectroscopy, Athens, Georgia, August, 1997.
- He, Lin-Tao and J. A. de Haseth, "Quantitative Analysis of Monosaccharide Component Ratios by FT-IR Microscopy and Partial Least Squares (PLS)," presented at the 11th International Conference on Fourier Transform Spectroscopy, Athens, Georgia, August, 1997.
- Bhat, S. A., C. Q. Yang, and J. A. de Haseth, "Study of Ester Crosslinking Reactions on Aluminum Surfaces by Infrared Attenuated Total Reflectance Spectrometry," presented at the 11th International Conference on Fourier Transform Spectroscopy, Athens, Georgia, August, 1997.
- Todebush, R. A. and J. A. de Haseth, "The Use of Particle Beam LC-FTIR and LC-MS for the Characterization of Deuterated Enzymatically Digested Horse Heart Cytochrome C," presented at the Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Orlando, Florida, March, 1999.
- Melkowitz, R. B., S. P. Altomari, J. A. de Haseth, and S. B. Levery, "Monosaccharide Composition Analysis by Infrared Microspectrometry," presented at the Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Orlando, Florida, March, 1999.
- Melkowitz, R. B. and J. A. de Haseth, "FT-IR Microspectrometric Analysis of Complex Carbohydrates," presented at the Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, New Orleans, Louisiana, March, 2000.
- Melkowitz, R. B., J. A. de Haseth, and S. B. Levery, "Single-Bounce ATR/FT-IR Microspectrometric Analysis of Complex Carbohydrates," presented at the Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, New Orleans, Louisiana, March, 2001.
- Todebush, R. A. and J. A. de Haseth, "Microconcentric CE/FT-IR Nebulizer," presented at the Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, New Orleans, Louisiana, March, 2001.



- Thomas, A. G. A., M. Corredig, and J. A. de Haseth, "ATR/FT-IR Spectrometric Analysis of Protein Secondary Structural Changes in Emulsions," presented at the Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, New Orleans, Louisiana, March, 2001.
- Todebush, R. A. J. L. Jarman, and J. A. de Haseth, "Semi-Automated Sample Deposition System," presented at the Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, New Orleans, Louisiana, March 2001.
- Jarman, J. L. and J. A. de Haseth, "FT-IR Spectrometric Detection for Capillary Electrophoresis," presented at the Federation of Analytical Chemistry and Spectroscopy Societies, Detroit, Michigan, October, 2001.
- Jarman, J. L., R. A. Todebush, and J. A. de Haseth, "FT-IR Spectrometric Detection for Capillary Electrophoretic Analyses," presented at the Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, New Orleans, Louisiana, March 2002.
- Jarman, J. L., S. I. Seerley, and J. A. de Haseth, "Semi-Automatic Sample Deposition and its Application to ATR/FT-IR Spectrometric Analysis," presented at the Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, New Orleans, Louisiana, March 2002.
- Jarman, J. L., S. I. Seerley, and J. A. de Haseth, "Precision and Reproducibility of Semi-Automated Sample Deposition for FT-IR/ATR Analyses," presented at the Federation of Analytical Chemistry and Spectroscopy Societies, Providence, Rhode Island, October 2002.
- Jarman, J. L. and J. A. de Haseth, "Continued Optimization and Characterization of a Glass Nebulizer CE/FT-IR Interface for Transmission Analyses," presented at the Federation of Analytical Chemistry and Spectroscopy Societies, Providence, Rhode Island, October, 2002.
- Seerley, S. I., J. L. Jarman, and J. A. de Haseth, "Semi-Automatic Sample Deposition for Micro ATR/FT-IR Spectrometry," to be presented at the Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Orlando, Florida, March 2003.
- Jarman, J. L. and J. A. de Haseth, "FT-IR Spectrometric Detection in Capillary Electrophoretic Separations," to be presented at the Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Orlando, Florida, March 2003.
- Thomas, A. G. A. and J. A. de Haseth, "ATR Infrared Composition Analysis of Intact Oligosaccharides," to be presented at the Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Orlando, Florida, March 2003.
- Jarman, J. L. and J. A. de Haseth, "Application of FT-IR Spectrometric Detection in Capillary Electrophoretic Separations," presented at the 2004 Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Chicago, IL, March 8-11, 2004.

## **Professional Service**

### **Continuing Education**

#### **Co-Director: Society for Applied Spectroscopy Short Course on Fourier Transform Infrared Spectrometry.**

Presented: Philadelphia, PA, September 1982; Philadelphia, PA, September 1983; Pasadena, CA, October 1983; Philadelphia, PA, September 1984; Philadelphia, PA, September 1985; St. Louis, MO, September 1986; Atlantic City, NJ, March 1987; Irvine, CA, October 1987; New Orleans, LA, February 1988; Boston, MA, October 1988; Atlanta, GA, March 1989; Chicago, IL, September 1989; New York, NY, February 1990; Cleveland, OH, October 1990; Chicago, IL, March 1991; Anaheim, CA, October 1991; New Orleans, LA, March 1992; Philadelphia, PA, September 1992; Atlanta, GA, March 1993; Detroit, MI, October 1993; Chicago, IL, February 1994; St. Louis, MO, October 1994; New Orleans, LA, February 1995; Cincinnati, OH, October, 1995; Chicago, IL, March 1996; Kansas City, MO, September 1996; Nashville, TN, September 1999.

Independent presentations: The Perkin-Elmer Corporation, Ridgefield, CT; Standard Oil of Ohio, Cleveland, OH; Dow Chemical USA, Freeport, TX; PPG Industries, Pittsburgh, PA; Alcoa, Pittsburgh, PA; Colegio de Quimicos de Puerto Rico, San Juan, PR.

#### **Co-Director: Pittsburgh Conference Shortcourse on Advanced Fourier Transform Infrared Spectrometry.**

Presented: Atlanta, GA, March 1997; New Orleans, LA, March 1998.

#### **Co-Director: Pittsburgh Conference Shortcourse on Measuring and Enhancing the Performance of FT-IR Spectrometers.**

Presented: Orlando, FL, March 1999; New Orleans, LA, March 2000; New Orleans, LA, March 2001; New Orleans, LA, March 2002; Orlando, FL, March 2003; Chicago, IL, February 2004.

#### **Co-Director: Pittsburgh Conference Shortcourse on FT-IR Spectrometry of Surface Layers.**

Presented: Orlando, FL, March 1999 ; New Orleans, LA, March 2000; New Orleans, LA, March 2001; New Orleans, LA, March 2002 ; Orlando, FL, March 2003; Chicago, IL, February 2004; Orlando, FL, March 2005; to be presented Orlando, FL, March 2006.

**Instructor: 1st Euro-American Intensive Shortcourse on Advanced Infrared and Raman Spectroscopy**, Hungarian Academy of Sciences, Veszprém, Hungary, August 1995.

**Organizer and Co-Director: Society for Applied Spectroscopy Workshop on Fourier Transform Infrared Spectrometry.**

Presented: Athens, GA, July 1985; Athens, GA, July 1986; Athens, GA, June 1987; Athens, GA, July 1988.

**Bowdoin College Infrared Spectroscopy Shortcourses and Workshops.**

Presented at Bowdoin College, Brunswick, ME: July 1989; July 1990; July 1991; July 1992; July 1993; July 1994; July 1995; July 1996; July 1997; July 1998; July 1999; July 2001; July 2002; July 2003; July 2004; July 2005.  
To be presented: July 2006.

Independent presentations: Aspenäs (Lerum), Sweden, May 1990; Aspenäs (Lerum), Sweden, June 1993; Aspenäs (Lerum), Sweden, May 1996; University of Warwick (Coventry), U.K., May, 1997; Stenungsund, Sweden, May 2002; .  
To be presented: Sweden, May 2005.

## **Offices in Professional Societies**

### **Coblentz Society**

Membership Committee (Chairman) 1982 - 1997.

Committee on Spectral Digitization 1985 - 1987.

Board of Managers 1985 - 1989.

Ellis Lippincott Award Selection Committee, sponsored by the Society for Applied Spectroscopy, the Coblentz Society and the Optical Society of America (Member 1983 - 1984, as a Coblentz Society representative).

### **Society for Applied Spectroscopy**

Meggers Award Committee, sponsored by the Society for Applied Spectroscopy (Chairman-Elect 1985, Chairman 1986).

Membership Education Committee (Member 1987 - 1989, Chairman 1988).

Ellis Lippincott Award Selection Committee, sponsored by the Society for Applied Spectroscopy, the Coblentz Society and the Optical Society of America (Member 1987, Chairman 1988, for the Society for Applied Spectroscopy).

Membership Education Coordinator (Coordinator Elect 1992, Coordinator 1993-1996, member 1997).

Executive Committee, 1993-1994.

President-Elect 2006, President 2007, Past-President 2008.

### **International Conferences**

Secretary, Symposium on the Analytical Chemistry of Pollutants, 1985 - present.

11th International Conference on Fourier Transform Spectroscopy (ICOFTS), August 1997, at Athens, GA. General Chairman.

International Conference on Fourier Transform Spectroscopy (ICOFTS), International Steering Committee (Member 1995-2003, Chair 2001-2003).

General Chairman for the 25th International Symposium on Environmental Analytical Chemistry, Jekyll Island, Georgia, June 19 through 21, 1995.

General Chairman for the 27th International Symposium on Environmental Analytical Chemistry, Jekyll Island, Georgia, June 15 through 19, 1997.

General Chairman for the 29th International Symposium on Environmental Analytical Chemistry, Jekyll Island, Georgia, May 23 through 27, 1999.

### **Service in Professional Societies**

GC-IR Sub-Committee of the Coblentz Society Evaluation Committee 1976 - 1979.

Analytical Program Chairman: 34th Southeastern Regional Meeting of the American Chemical Society, Birmingham, Alabama, November 1982.

Conference Organizer and General Chairman - Southeastern Association of Analytical Chemists (SEAAC) Meeting, Athens, Georgia, April 1985.

Session Organizer and Chairman - Eastern Analytical Symposium, New York, New York, November 1984.

Session Organizer and Chairman - Eastern Analytical Symposium, New York, New York, November 1985.

Session Organizer and Chairman - Eastern Analytical Symposium, New York, New York, October 1988.

Session Organizer and Chairman - 16th Federation of Analytical Chemistry and Spectroscopy Societies Meeting, Chicago, Illinois, October, 1989.

Award Symposium Organizer and Chairman - Ellis R. Lippincott Award Symposium presented at the 16th Federation of Analytical Chemistry and Spectroscopy Societies Meeting, Chicago, Illinois, October, 1989.

Session Organizer and Chairman - 17th Federation of Analytical Chemistry and Spectroscopy Societies Meeting, Cleveland, Ohio, October, 1990.

Vibrational Spectroscopy Session Organizer - 18th Federation of Analytical Chemistry and Spectroscopy Societies Meeting, Anaheim, California, October 6-11, 1991.

Session Organizer and Chairman, Applications of Infrared Fibers to Mid- and Near-IR Spectroscopy - 21st Federation of Analytical Chemistry and Spectroscopy Societies Meeting, St. Louis, Missouri, October 1994.